

**REMARKS**

***Status of Claims***

Claims 1, 2, 5-18, 21-22, 25-27, and 30-33 are currently pending. Claims 1, 25 and 32 are independent. Applicants note that no claims are amended, added, or cancelled herein. The Listing of Claims is provided for the Examiner's reference.

Applicants respectfully request the Examiner to reconsider and withdraw the outstanding rejections in view of the following remarks and the attached declaration under 37 C.F.R. § 1.132.

***Claim Rejections Under 35 U.S.C. § 103(a)***

Claims 1, 2, 5-18, 21, 25-27, and 30-31 stand rejected under 35 U.S.C. § 103(a) over U.S. Patent No. 2,877,257 ("Cain") in view of U.S. Patent Application Publication No. 2002/0173556 ("Moore"). Claim 22 stands rejected under 35 U.S.C. § 103(a) over Cain in view of Moore and further in view of U.S. Patent No. 6,476,086 ("Zhou"). Claims 32 and 33 stand rejected under 35 U.S.C. § 103(a) over Cain in view of Moore et al. and further in view of Zhou. Applicants respectfully disagree with these rejections; therefore, these rejections are respectfully traversed.

Cain relates to a process for the purification of hydrocarbon solutions of oxygenated organic compounds comprising acids and which also may contain dissolved or occluded metal contaminants such as iron or iron compounds. (Column 1, Lines 15-19). Cain discloses that the contaminated hydrocarbon products can be produced by synthesis when carbon monoxide and hydrogen are reacted with a promoted iron catalyst. (Column 1, Lines 26-36). Cain discloses that the product produced from such a process contains dissolved or occluded metal contaminants such as iron or iron compounds. (Column 1, Lines 51-54).

With regard to the purification process, Cain discloses that a crude hydrocarbon synthesis oil is washed with an aqueous acid solution. Such washing produces aqueous acid extract containing *dissolved chemicals including water soluble chemicals, iron salts, and salts of basic nitrogen compounds* and washed primary oil. Washing is repeated until no brown precipitate is produced on the addition of a suitable base to the acid extract. (Figure 2, Column 7, Lines 40-51, and Column 2, Lines 19-25, emphasis added). The *dissolved*

chemicals present in the aqueous acid extract are recovered by distillation and the acid returned for use in a subsequent extraction step. (Column 3, Lines 44-47, emphasis added).

In contrast, amended independent claims 1 and 25 are directed to methods of removing contamination from a Fischer-Tropsch derived hydrocarbon stream by ***precipitating*** Al contamination out of a Fischer-Tropsch derived hydrocarbon stream, so that such ***precipitated*** Al contamination can then be removed through filtration.

The Examiner points out that Cain discloses “separation of iron and iron compounds from the hydrocarbon stream which may be in . . . solution or occluded form.” (Office Action, Page 9). The Examiner acknowledges that Cain “does not disclose that aluminum is removed from the hydrocarbon.” (Office Action, Page 4). The Examiner asserts,

Although Cain does not specifically disclose separation of Al particulates, it is known to those skilled in the art that support materials including alumina are used in the Fischer-Tropsch (FT) catalyst (See Moore, paragraph 0079). Thus, Al will necessarily be present in the FT synthesis product. Thus, in [the] Cain process while iron is separated, Al will necessarily be separated simultaneously.

(Office Action, Page 9).

However, Applicants note that paragraph [0079] of Moore merely discloses,

Suitable Fischer-Tropsch catalysts comprise one or more Group VIII catalytic metals such as Fe, Ni, Co, Ru and Re. Additionally, a suitable catalyst may contain a promoter. Thus, a preferred Fischer-Tropsch catalyst comprises effective amounts of cobalt and one or more of Re, Ru, Pt, Fe, Ni, Th, Zr, Hf, U, Mg and La on a suitable inorganic support material, preferably one which comprises one or more refractory metal oxides. In general, the amount of cobalt present in the catalyst is between about 1 and about 50 weight percent of the total catalyst composition. The catalysts can also contain basic oxide promoters such as ThO<sub>2</sub>, La<sub>2</sub>O<sub>3</sub>, MgO, and TiO<sub>2</sub>, promoters such as ZrO<sub>2</sub>, noble metals (Pt, Pd, Ru, Rh, Os, Ir), coinage metals (Cu, Ag, Au), and other transition metals such as Fe, Mn, Ni, and Re. Support materials including alumina, silica, magnesia and titania or mixtures thereof may be used. Preferred supports for cobalt containing catalysts comprise titania. Useful catalysts and their preparation are known.

As explained in the attached Declaration Under 37 C.F.R. §1.132 of Charles L. Kibby, it is respectfully submitted that contrary to the assertion of the Examiner, it is not true that Al will necessarily be separated in the process of Cain. (Paragraph 10).

As explained in the declaration, the catalyst in Cain is an iron catalyst and significant numbers of prior literature suggest that this was a bulk, unsupported iron catalyst. (Paragraph 14). As further explained in paragraphs 15 and 16 of the attached Declaration, skilled catalyst scientists have attempted for years to synthesize a suitable supported iron catalyst for Fischer-Tropsch service, with U.S. Patent No. 7,259,286 ("the '286 patent", issued August 21, 2007) being exemplary, and supported iron catalysts are not preferred.

Accordingly, as attested to by one skilled in the art, it would be understood that the catalyst of Cain was a bulk, unsupported iron catalyst, and it would by no means be inherent in the process of Cain that Al contamination would be present. (Paragraph 18). Further as attested to by one of skill in the art, there is no teaching in Cain to suggest that an acid treatment could be extended to Al contamination and thus, one of skill in the art, when faced with the problem of Al contamination in a Fischer-Tropsch derived hydrocarbon stream, would not look to Cain for guidance on how to remove Al contamination from a Fischer-Tropsch process. (Paragraph 19).

In view of the above remarks and the attached declaration, as cited Moore and do not correct the above-noted deficiencies of Cain.

Therefore, in view of at least the above reasons and the attached Declaration Under 37 C.F.R. §1.132 of Charles L. Kibby, withdrawal of the rejections under 35 U.S.C. § 103(a) are respectfully requested.

### ***Conclusion***

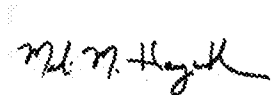
For the reasons noted above, the art of record does not disclose or suggest the inventive concept of the present methods as defined by the claims.

In view of the foregoing remarks and the attached declaration, reconsideration of the claims and allowance of the subject application is earnestly solicited. In the event that there are any questions relating to this application, it would be appreciated if the Examiner could telephone the undersigned attorney concerning such arguments so that prosecution of this application may be expedited.

If necessary for a timely response, this paper should be considered as a petition for an Extension of Time sufficient for a timely response, and please charge any deficiency in fees or credit any overpayments to Deposit Account No. 05-1323 (Docket #103904.B500790).

Respectfully submitted,

6 April 2009



\_\_\_\_\_  
Melissa M. Hayworth  
Registration No. 45,774

CROWELL & MORING LLP  
Intellectual Property Group  
P.O. Box 14300  
Washington, DC 20044-4300  
Telephone No.: (202) 624-2500  
Facsimile No.: (202) 628-8844  
MMH/MRB/LK